NASA Telescopes Join Forces To Observe Unprecedented Explosion

Discovered by Swift, followed up with Chandra and HST: very bright, variable, high-energy, long-lasting burst.

Most likely explanation is star being torn apart by galaxy’s central black hole.
SMD has a new YouTube channel hosting short science videos.

The first Astrophysics ScienceCast was released March 31st on the recent Chandra Superfluid core.

http://www.youtube.com/user/ScienceAtNASA
The schedule for the current round of NASA Explorer proposals is:

- Step 1 Selections announced (target) .....................Sept 2011
- Phase A Concept Study Reports due (target) ....August 2012
- Down-selection for flight (target) ......................February 2013

There are:

- 15 Astrophysics EX mission proposals - $200M plus launch costs
- 11 Astrophysics Missions of Opportunity proposals - $55M includes both Partner MOs and Small Complete Missions

Proposed ESA member state participation:

- 7 (27%) have no ESA member state involvement
- 15 (58%) involve science-only contributions from ESA member states
- 4 (15%) involve ESA member state science contributions and in addition hardware or facility contributions valued at > $10M
• Project working to maintain cost and schedule.
  – New Instrument Manager and financial team brought on board in March.
• Japanese Disaster has had modest impact to Astro-H thus far.
  – Delays in environmental testing for JAXA hardware due to black-outs and energy conservation efforts in Tokyo area.
  – JAXA has asked NASA to maintain our existing schedule and interfaces.
• Engineering Model (EM) Mirror nearing completion.
• EM model Adiabatic Demagnetization Refrigerator (ADR) has completed vibration testing and is ready for EM Integration and test.
• Design Meeting held at JAXA is 2/21-2/22.
• Science Working Group Meeting held at JAXA 2/23-2/24.
• Next Science Working Group Meeting at SLAC 7/18-7/19.
• NASA hardware Critical Design Review (CDR) to be held 6/21-6/23 at GSFC.
NuSTAR Instrument Integration and Testing at JPL is currently ongoing, with Instrument completion planned for mid-late April 2011.

- NuSTAR x-ray optics modules were both completed, installed into the Instrument structure, and aligned.

Overall NuSTAR Observatory completion currently planned for November 2011 to support a February 3, 2012 launch from Kwajalein Island
• Initiated Short Science #2 Flight Series with German Receiver for Astronomy at Terahertz Frequencies (GREAT) on April 5 (see below)

• Obtained approval to fly the SOFIA aircraft in Reduced Vertical Separation Minimums (RVSM) airspace. This allows much greater flexibility in observations and broadens the range of science targets.

• Released Call for Proposals on March 1 for Airborne Astronomy Ambassadors (AAA) Pilot Program (limited distribution call)
LISA and IXO

- 3 candidate concepts were competing for ESA’s L1 2020 opportunity: LISA, IXO and EJSM/Laplace, each with a significant NASA partnership
- None of these were recommended as top priority by the US decadal surveys
- The decadal rankings combined with the constrained projected out-year resources in the FY12 President’s Budget Request led ESA to conclude that a 2020 schedule is not feasible for any of the 3 candidates
- An exploratory ESA activity has started to see if any and which of the science goals of the three L missions could be implemented as an Europe-led mission targeting an early 2020’s launch date
  - European “Science Teams” are being formed with rapid mission definition effort
  - A “NASA HQ-empowered scientist” will participate on each of the three Science Teams
  - L1 plan to be discussed at June ESA SPC meeting; tentative plan for downselect foreseen at Feb 2012 SPC meeting
- Consideration of the LISA and IXO concepts with the scale and partnerships as proposed to the NWNH decadal survey is ended
- NASA-APD plans to continue the base funding for the LISA and IXO teams through FY11 (pending not-larger-than-anticipated cuts in appropriations from Congress)
- NASA-APD will consult with the community about strategic investments in gravity wave and X-ray astrophysics in future years in the context of the NWNH recommendations and projected resource availability (after the JWST re-baseline is known)
  - APD will engage community through discussions and possible solicitations for new concept studies, in parallel with on-going interactions with ESA re-scoped L1 mission candidates
PhysPAG Activities Since February

- Inflation Probe SAG (IPSAG) [Shaul Hanany coordinator]
  - Email sent out to community on March 10. So far have 37 members showing interest (28 US, 9 International). Expect more to join once activities begin.
  - Now gearing up for the first telecon; date TBA very soon.
- Technology SAG [Roger Brissenden coordinator]
  - Several telecons, many emails, to prepare inputs to NRC (see separate slides). Approximately a dozen participants.
- Updates/improvements to the website (thanks, PCOS office!)
- Face-to-face meeting now set
  - APS (American Physical Society) recently gave us a splinter meeting room in Anaheim for Sunday, 1 May, 9AM-2PM. Details to be posted on the website soon. Announcement email.
COPAG Activities Since February

• **NRC/NASA Technology Roadmapping Inputs**
  – C. Martin attended TA08 Panel Workshop on 27 March 2011
  – Inputs from COPAG will be submitted in written form by 15 April 2011
  – #1: High quantum efficiency, low noise UV (& Optical-NIR) photon counting detectors
  – #2: UV coating developments and other technologies that make possible a joint UV/optical and Exoplanet Imaging mission
  – FIR/Sub-mm inputs coordinated by P. Goldsmith
  – WFIRST inputs also being discussed

• **SAG2-Joint UVO-ExoP Mission: Coordination Meeting**
  – Initial coordination meeting between COPAG and ExoPAG will occur on 26 April 2011 at StScI.

• **Website on-line shortly**

• **Next community meeting**
  – AAS meeting – Boston, Tuesday, May 24, 12:30 PM - 3:30 PM
The ExoPAG is starting to lay the groundwork for a future, flagship-class, UV/optical telescope mission that could find and characterize Earth-sized planets around nearby stars.

COPAG is also interested in a large UV/optical telescope mission.

The ExoPAG and COPAG are holding a joint meeting on Apr. 26, 2011, at Space Telescope Institute in Baltimore to begin discussions on this mission:

- To find Earths, the telescope must be able to block out the light from the star and find dim planets close to it.
- A key question is whether this will be done using an internal coronagraph or an external occulter.
International planning

- Looking at options for instrument concept studies for contributions to international missions (e.g. M3, L1, SPICA)
- How to plan strategic coordination and cooperation
  - Working with other space agencies with similar goals and interests (e.g., ESA Cosmic Vision process, etc.)
- Considering possible 2012 conference…
Backup Slides
Issues & Concerns

- FY 2011 Budget completion
- JWST re-baseline
- Usage of advisory structure
- Future implementation of WFIRST, LISA, IXO; SPICA
- ST-7 timeliness
- FY12 budget reduction ramifications (GALEX, Suzaku, …)